



MATERIAL SAFETY DATA SHEET

DMS 2055

To the Purchaser: This MSDS contains important environmental, health and toxicology information for your employees who have ordered this product. Please be sure this information is given to them. If you resell this product, a copy of this MSDS should be given to the buyer.

MANUFACTURER'S NAME
Ferro Corporation, Composites DivisionEMERGENCY PHONE NO
(216) 641-8580 EXT 235

ADDRESS (number, street, city, state, & zip code)

3512 Helms Avenue, Culver City, CA 90230

DMS 2055 / TYPE 2 - GR A

SECTION 1

CHEMICAL NAME & SYNONYMS

Phenol-Formaldehyde Prepreg/Glass

TRADE NAME & SYNONYMS

CPH-2207/Woven Glass

CHEMICAL FAMILY
Phenolic ResinCAS NUMBER
9003-35-4FORMULA (C₆H₆O•CH₂O)_x

SECTION II

OSHA POTENTIAL HAZARDOUS SUBSTANCE
IDENTIFIED WITH AN: (HAZ) BEFORE THE NAMELD₅₀LC₅₀

COMPOSITION

%

SPEC.

ORAL

DERMAL

CONC.

HOURS

(HAZ) Phenol-Formaldehyde Resin

32-55

See Section V

Polymer

(HAZ) Woven Fiberglass

45-68

LC₅₀ inh -hmn300 ug/m³ 10 yrs

ADDITIONAL INFORMATION

Toxicological information from NIOSH Registry of

Toxic Effects of Substances

SECTION III PHYSICAL DATA

BOILING POINT (°F.)

Resin will cure before boiling

N/A

SPECIFIC GRAVITY (H₂O=1)

~1.9

VAPOR PRESSURE (mm Hg.)

at 25°C

< 1

PERCENT VOLATILE
BY VOLUME (%)

10 min/325 °F

3-9

VAPOR DENSITY (AIR=1)

> 1

EVAPORATION RATE
(N.B.U.C. :1)

< 1

SOLUBILITY IN WATER

Negligible

APPEARANCE & ODOR

Amber to black color, at ambient temp. a light formaldehyde odor

SECTION IV FIRE & EXPLOSION HAZARD DATA

FLASH POINT (method used)

uncured material U.C. >350°F

FLAMMABLE LIMITS

Lel N/A

Uel N/A

EXTINGUISHING MEDIA

CO₂, dry chemical, foam, water fog

SPECIAL FIRE FIGHTING PROCEDURES

Combustion will give off toxic products, use self-contained breathing apparatus.

UNUSUAL FIRE & EXPLOSION HAZARDS Airborne dusts produced from grinding or cutting of the cured prepreg resin may ignite if exposed to an ignition source. Keep this work away from sources of ignition. Ground equipment to prevent static electricity.

SECTION V HEALTH HAZARD DATA

INHALATION EXPOSURE LIMIT Organic vapor; recommend ACGIH TLV: 2 ppm (3 mg/m³) based on formaldehyde; Nuisance dust OSHA Standard PEL: 10 mg/m³

EFFECTS OF OVEREXPOSURE Dust and vapor are mild pulmonary and eye irritants. Long term breathing of the dusts can damage the lungs. Some workers may become sensitized from either breathing vapors from, or skin contact with the uncured resin. Vapors may cause asthmatic condition in sensitive workers, where there is poor ventilation. Contact dermatitis could result from repeated handling with unprotected skin. Ingestion, the material is considered to be of minimal toxicity.

EMERGENCY AND FIRST AID PROCEDURES Respiratory irritations and headaches-person should be moved to fresh air and referred to a physician. Eye contact - must be flushed immediately with large quantities of water, medical attention should be obtained without delay. Ingestion, dilute with milk or water, induce vomiting, call a physician. Skin irritation - remove person from the causative source, thoroughly wash with soap and water after contact. If irritation persists for several days, seek medical treatment from a physician competent in industrial health.

SECTION VI REACTIVITY DATA

STABILITY	UNSTABLE		CONDITIONS TO AVOID
	STABLE	X	
INCOMPATIBILITY (Materials to avoid) For the uncured resin, strong acids or alkalis, strong oxidizing agents.			
HAZARDOUS DECOMPOSITION PRODUCTS Phenol, methyl phenols, carbon monoxide, carbon dioxide, aldehydes			
HAZARDOUS POLYMERIZATION	MAY OCCUR		CONDITIONS TO AVOID
	WILL NOT OCCUR	X	

SECTION VII SPILL OR LEAK PROCEDURES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED

Normal procedures for solid trash.

WASTE DISPOSAL METHOD Use a state or local agency approved land fill or incinerator. The cured material is not readily biodegradable and contains no significant percentage of material extractable in water so its effect on ground water in case of land fill disposal should be negligible.

SECTION VIII SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION (specify type) Above the TLV: NIOSH approved for formaldehyde vapor and pneumoconiosis producing dusts.

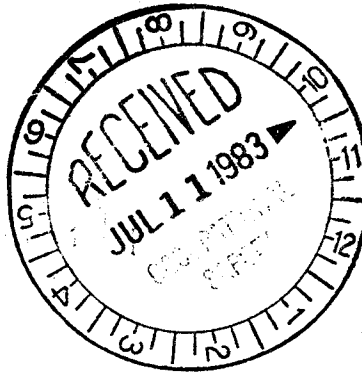
VENTILATION	LOCAL EXHAUST for grinding and sawing	SPECIAL
	MECHANICAL (general) for lay up and curing rooms	
PROTECTIVE GLOVES Impervious rubber gloves polyolefin or neoprene type		
EYE PROTECTION Goggles for protection from dust in machining operation		

OTHER PROTECTIVE EQUIPMENT Long sleeve shirts and pants; recommend apron be worn for lay-up operations, wear clean clothes daily, resin contaminated clothes could promote dermatitis.

SECTION IX SPECIAL PRECAUTIONS

PRECAUTIONS TO BE TAKEN IN HANDLING & STORING Store the uncured prepreg at 40°F or less. Keep the uncured material away from sources of ignition. Wash hands before eating or smoking - DO NOT store food in work area.

Judgements as to the suitability of information herein for the purchaser's purposes are necessarily the purchaser's responsibility. Reasonable care has been taken in the preparation of this information, but FERRO EXTENDS NO WARRANTIES, MAKES NO REPRESENTATIONS AND ASSUMES NO RESPONSIBILITY AS TO ACCURACY OR SUITABILITY OF THIS INFORMATION FOR ANY PURCHASER'S USE OR FOR ANY CONSEQUENCE OF ITS



COMPOSITES DIVISION
FERRO CORPORATION
WESTERN PLANT
P.O. BOX 925
3512-20 HELMS AVENUE
CULVER CITY, CALIFORNIA 90230
TELEPHONE (213) 870-7873
TELEX 67-4016

July 6, 1983

Ms. L. M. "Sam" Ward
Industrial Hygiene Section
Dept. 121 - Mail Code 126-14
McDonnell Douglas Aircraft Co.
3855 Lakewood Blvd.
Long Beach, CA 90846

Subject: Supplier's Material Safety Data Sheets (MSDS)

Dear Ms. Ward:

In response to your MSDS request letter of June 24, 1983, I would like to make a clarification regarding our use of the generic name for a substrate in our MSDS in place of using the specific part number for that material. Such an example were the MSDS's I sent to your associate, Ms. Rebecca Lally, on June 2, 1983. From your June 24 correspondence request:

DAC No. DMS 2055 CPH-2207-7781 (Type 1, Grade A)
 CPH-2207-8800 (Type 2, Grade A)
 CPH-2207-1582 (Type 3, Grade A)

This directly translates to our product MSDS of:

CPH-2207/Woven Glass

In this case the generic substrate is: "Woven Glass". The following part numbers you listed in your MSDS request, 7781, 8800 and 1582 all stand for Woven Glass, the only difference is in the type of roving (weave) that is utilized. For the purpose of industrial hygiene, good practice and safety concerns, you treat all three of these woven glass rovings the same. Thus, this is the reason why we use one generic name substrate MSDS to cover several substrate part numbers which contain the same formulated resin polymer code, i.e., CPH-2207.

Regarding the information listed in brackets in your June 24 request, i.e., (Type 1, Grade A) etc., this information is an internal Douglas Aircraft Company designation and has nothing to do with the chemical formulation of the resin polymer or the substrate material that was impregnated and should be disregarded for our purposes.

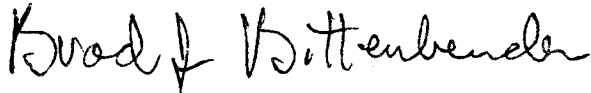
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Ms. L. M. Ward
July 6, 1983
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I hope this information will be of assistance to you. If you have any questions on this subject, please don't hesitate to telephone me at (213) 944-0111.

Sincerely,

FERRO CORPORATION
Composites Division

A handwritten signature in cursive script that reads "Brad J. Bittenbender".

Brad J. Bittenbender
Environmental Administrator-California

BJB/ja

cc: Raj Dhawan